Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

In the Matter of	)	
	)	
Establishment of Rules and Policies for the	)	IB Docket No. 95-91
Digital Audio Radio Service in the	)	GEN Docket No. 90-357
2310-2360 Mhz Frequency Band	)	

COMMENTS OF THE CONSUMER ELECTRONICS GROUP OF THE ELECTRONIC INDUSTRIES ASSOCIATION

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The Consumer Electronics Group of the Electronic Industries Association ("EIA/CEG") hereby submits the following comments in response to the Notice of Proposed Rule Making ("*Notice*") which the Commission issued in the above-captioned proceeding on June 15, 1995.[1]

I. SUMMARY OF POSITION

EIA/CEG shares the Commission's enthusiasm for Digital Audio Radio Service ("DARS") and concurs in the Commission's assessment that the rapid and widespread deployment of DARS will serve the public interest. DARS represents a quantum leap forward in the capabilities of radio service. Building on the extraordinary consumer demand for compact discs ("CDs") and the exceptional sound quality which digital technology makes possible, DARS will offer consumers the ability to enjoy -- wherever they may be -- the extremely high fidelity, distortion-free listening experience which they desire. In much the same way that Advanced

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[1] *See Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, Notice of Proposed Rule Making, IB Docket No. 95-91, GEN Docket No. 90-357, FCC 95-229 (released June 15, 1995).

Television ("ATV") promises to usher in a new television experience, DARS promises to create a new radio experience for listeners throughout the United States and the world.

In its *Notice*, the Commission has solicited comment on a wide variety of issues regarding the implementation and regulation of DARS, not the least of which is the impact of satellite DARS on terrestrial broadcasters. EIA/CEG urges the Commission to address these issues expeditiously and to keep in mind the public's demand for DARS capabilities. Two issues merit particular attention in this regard. First, the Commission should adopt an industry-developed minimum standard for both satellite and terrestrial DARS transmission so as to ensure that consumers can purchase robust DARS equipment at reasonable prices. With such a standard, DARS equipment manufacturers will be able to maximize, and consumers will benefit from, economies of scale. Second, the Commission should make frequency coordination with Canada and Mexico a priority, so that international coordination issues do not impede the deployment of satellite DARS systems once the Commission has completed this proceeding.

EIA/CEG's enthusiasm for DARS has been fueled by the laboratory tests of various DARS technologies recently completed by EIA/CEG. These tests confirm that today's developmental technologies can readily approximate CD quality sound. EIA/CEG will soon initiate field tests to supplement these results and will provide the Commission with test data as they become available, which should help the Commission in resolving the technical issues identified by the *Notice*. In the meantime, the Commission should proceed apace with a view towards ensuring that DARS systems are introduced, and the public enjoys the benefits of DARS technology, as early as possible.

II. EIA/CEG'S INTEREST IN DARS

EIA/CEG is the principal U.S. trade association of the consumer electronics industry. EIA/CEG members design, manufacture, import, distribute, and sell a wide variety of consumer electronics equipment, including radio and television receivers, video cameras and recorders, compact disc players, loudspeakers, and personal computers. Of particular relevance to this proceeding, EIA/CEG's members produce most of the 60 million radios that are sold in the United States each year.[2] EIA/CEG and its members therefore have a significant interest in the outcome of this proceeding.

As an association of manufacturers, one of EIA/CEG's principal goals is to enhance the industry's ability to satisfy the public's demand for radio receivers and related products. Towards this end, EIA/CEG regularly sponsors forums for the development of industry standards, participates in the formation of public policy, and compiles and distributes informational material for industry and consumers alike.[3] Four years ago, EIA/CEG's Audio Systems (or R-3) Committee established a DAR Subcommittee to analyze, test, and set standards for DARS systems. EIA/CEG also has jointly sponsored, in conjunction with the National Association of Broadcasters, the National Radio Systems Committee ("NRSC") DAB Subcommittee, which is assessing so-called in-band/on-channel ("IBOC") terrestrial DARS systems. EIA/CEG appreciates the Commission's recognition of these efforts and looks forward to its continued support.[4]

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[2] The typical American family owns an average of five radios.

[3] In fact, EIA was founded 71 years ago as the Radio Manufacturers Association.

[4] *See Notice* at ¶ 48.

III. THE PROMPT ADOPTION OF A DARS REGULATORY REGIME WILL SERVE THE PUBLIC INTEREST AND SATISFY THE PUBLIC'S DEMAND FOR DIGITAL RADIO SERVICE.

The demand for digital radio service is difficult to overstate. From its inception early in this century, radio has found its way into virtually every American home and now reaches every American on almost a daily basis. According to EIA's Market Research Department, radio (and television) receivers have penetration rates among American households upwards of 98 percent. It is estimated that four out of five adults listen to a car radio every day.[5] Digital audio products understandably do not have the same penetration rates, but their meteoric rise in popularity is well known. Today, little more than ten years after their introduction, CD players can be found in 47 percent of U.S. households; 13 percent of U.S. households also own CD players installed in or designed for automobiles.

Existing satellite-delivered audio services, even though restricted to stationary antennas, are also becoming increasingly popular. Digital Music Express ("DMX") has been offering satellite-based digital audio service to cable operators and commercial enterprises since 1991.[6] Now, Primestar, a provider of direct-to-home ("DTH") video services, has added 12 of DMX's audio channels to its program offerings, and DirecTV, a provider of high-powered Ku-band DTH service, is offering 30 digital audio channels.[7] Indeed, EIA/CEG understands that consumers have found DirecTV's digital audio programs to be one of that service's primary benefits.

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[5] *See* Statistical Research, Inc., RADAR 50 (Fall 1994).

[6] *See Notice* at ¶ 15.

[7] *See In Orbit Broadcasting*, Satellite Communications, April 1995, at 4.

In the *Notice,* the Commission has recognized the potential of satellite DARS to offer national programming, to bring service to remote locations not reached by terrestrial broadcasters, to make narrowcasting or "niche programming" more economically viable, and to stimulate economic growth through the development of new DARS businesses.[8] The defining characteristic of satellite DARS, however, will be its ability to deliver multiple, reliable, near-CD quality audio programs to fixed and, more important, mobile receivers. Given the demonstrable popularity of and demand for CD quality sound, the *Notice* is entirely correct in suggesting that the overall goal of this proceeding should be to ensure "that the listening public's needs are met by the most efficient and responsive service possible."[9]

The Commission should also keep in mind that the digital technology underlying DARS will create new opportunities to deliver a variety of ancillary services to consumers. These services might range from textual, commercial programming to the type of public safety messaging envisioned for Intelligent Transportation Systems. EIA/CEG believes that DARS licensees should be given broad flexibility to offer these ancillary services, so long as the quality of audio service -- the driving force behind this technology -- is not materially impaired. Subject to this condition, DARS has the potential to serve as the pipeline through which other public needs can be met and, ultimately, to become an important component of the National Information Infrastructure.

Given the extraordinary benefits which satellite DARS offers, the Commission should expeditiously establish a regulatory framework for this new service, taking into account

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[8] *See Notice* at ¶¶ 2-5.

[9] *Id.* at ¶ 21.

the results of the testing now being conducted by EIA/CEG. EIA/CEG is not unaware that the Commission has solicited comment on whether the deployment of satellite DARS will diminish the ability of terrestrial broadcasters to remain competitive in the provision of radio services.[10] EIA/CEG urges the Commission not to allow this politically sensitive issue to impede the deployment of satellite DARS. Although DARS should be implemented in a way that recognizes the continuing importance of services provided by terrestrial broadcasters, the potential consumer benefits of digital radio service are simply too great to be delayed or ignored. The Commission should therefore make every effort to bring DARS to the marketplace without undue delay.

IV. TO FACILITATE THE SUCCESSFUL DEPLOYMENT OF DARS, THE COMMISSION SHOULD ADOPT A SINGLE INDUSTRY-DEVELOPED TRANSMISSION STANDARD AND PROMPTLY ADDRESS INTERNATIONAL COORDINATION ISSUES.

In its *Notice*, the Commission has correctly identified the technical questions that must be addressed in order to structure the satellite DARS industry so as to maximize consumer benefits. Among other things, the Commission has solicited comment on: how much spectrum should be assigned to DARS licensees;[11] whether, within that spectrum, licensees should provide a minimum number of programming channels;[12] whether satellite DARS licensees should be permitted to share spectrum with each other;[13] and whether minimum link margins should be

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[10] *See id.* at ¶ 13.

[11] *See id.* at ¶ 31.

[12] *See id.* at ¶¶ 31 & 36.

[13] *See id.* at ¶ 82.

adopted to ensure reliable service.[14] EIA/CEG's ongoing tests of DARS technologies (described below) should assist the Commission in resolving these issues. EIA/CEG also expects DARS proponents to elaborate on their own perceived capabilities. To facilitate the successful deployment of satellite DARS, two critical technical issues should be addressed as early as possible: first, the Commission should adopt a minimum industry-developed transmission standard for satellite and terrestrial DARS; and, second, it should resolve the international frequency coordination issues confronting the United States in North America.

A. The Commission Should Adopt a Single Industry-Developed Transmission Standard for Satellite and Terrestrial DARS.

One of the Commission's principal goals in this proceeding should be the adoption of a single, industry-developed transmission standard for DARS. At the very least, the Commission should require interested industry groups to work towards this goal.

A single transmission standard will be critical in promoting consumer acceptance -- and ensuring the ultimate success -- of DARS. As the *Notice* recognizes, DARS must be affordable if it is to succeed.[15] In the absence of industry standards, the cost of developing receivers and other equipment for disparate DARS systems could push the price of digital radio beyond what many consumers are willing to pay.[16] Similarly, DARS systems should be designed so that consumers can seamlessly switch between satellite- and terrestrial-based DARS systems. If the absence of a uniform transmission standard prevents consumers from switching

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[14] *See id.* at ¶ 46.

[15] *See id.* at ¶ 49.

[16] *See id.*

from one system to another, consumer choice will be frustrated. Such frustration could limit DARS penetration to the point where individual DARS systems might fail.[17]

The Commission's past experience clearly illustrates the benefits of uniform transmission standards. In the early 1980s, the Broadcast Television Systems Committee ("BTSC") (which EIA established) developed an industry standard for the delivery of television signals with stereo sound capability. The Commission eventually adopted that standard as the norm and, because of it, the public has benefited enormously.[18] Televisions with stereophonic sound capability are now commonplace. Because the demand for stereo televisions is not fragmented by competing standards, manufacturers have been able to take advantage of economies of scale. Consequently, it has become less and less expensive to deliver stereo reception capability, and more and more consumers have been able to afford the benefits of stereo television.

In contrast, the difficulty which AM stereo encountered during the same time period demonstrates the risks inherent in not requiring the use of basic transmission standards. In the early 1980s, the Commission declined to adopt a single standard for AM stereo, and instead opted to let the marketplace choose among the five technologies then available.[19] In the absence of a single standard, that technology -- which at one time was believed to hold the

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[17] A single technical standard is absolutely essential if DARS is to be implemented as a conventional, or "free," broadcast service. Consumer frustration will be particularly acute if the broadcast receiver which the consumer chooses cannot access all the "free" channels available.

[18] *See Use of Subcarrier Frequencies in Aural Baseband of Television Transmitters*, 49 Fed. Reg. 18,100 (1984).

[19] *See Radio Broadcast Services; AM Stereophonic Broadcasting*, 47 Fed. Reg. 13,152 (1982).

promise for reinvigorating AM service -- struggled. Eventually, but not until 1993, a single standard was adopted.[20]

EIA/CEG believes that, once completed, the testing and evaluation of DARS technologies which are now underway will suggest minimum transmission standards for terrestrial and satellite DARS. These standards will create a foundation on which individual entrepreneurs and the marketplace can build to satisfy consumer demand. The Commission should encourage this process.

B. The Commission Should Make Frequency Coordination with Canada and Mexico a Priority.

The Commission also should continue its efforts to resolve the international frequency coordination obstacles alluded to in the *Notice*. As the Commission is well aware, frequency coordination with other administrations and, in particular, with Canada and Mexico could prove to be a difficult and lengthy process. As a partial response, the Commission has proposed not to license (initially at least) the 2310-2320 MHz band, which is used most intensively by Canadian fixed terrestrial systems. According to the *Notice*, satellite DARS licensees also could begin the coordination process upon receiving authorization to commence construction.[21]

EIA/CEG, however, fears that this may not be practicable and that coordination may prove to be more difficult than the *Notice* suggests. EIA/CEG therefore urges the

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[20] *See Amendment of the Commission's Rules to Establish a Single AM Radio Stereophonic Transmitting Equipment Standard,* 8 FCC Rcd 8216 (1993).

[21] *See Notice* at ¶¶ 62-67.

Commission to focus on the resolution of these international coordination problems as promptly as possible, and certainly not wait until it takes action on licensing issues.

V. EIA/CEG EXPECTS TO COMPLETE THE TECHNICAL EVALUATION OF COMPETING DARS TECHNOLOGIES IN THE NEAR TERM AND WILL PROVIDE THE COMMISSION WITH ITS TEST RESULTS AND RECOMMENDATIONS AS SOON AS THEY BECOME AVAILABLE.

EIA/CEG and the NRSC are proceeding apace with their efforts to assess the capabilities of competing DARS technologies. Preliminary data have been culled from 17 months of laboratory testing of various DARS technologies, including technologies which might be used by terrestrial broadcasters to compete with satellite-based DARS operations. These data have been presented to EIA/CEG's DAR Subcommittee and NRSC's DAB Subcommittee for evaluation and comment. As those data are being evaluated, EIA/CEG will begin to field test DARS technologies to supplement the laboratory results. These field tests are to be conducted in the varied -- and challenging -- propagation environment of San Francisco, California. The tests will assess the performance of satellite-based technology (using S-band transmissions from a NASA TDRS satellite) and several terrestrial technologies in the San Francisco Bay area's "urban canyons," across its bodies of water, and among its hills and rolling terrain under actual radiofrequency conditions.

All of the necessary testing should be completed by the end of this calendar year, and the analysis of these results, including any recommendations which they support, should be provided to the Commission in the first quarter of 1996. The results of these tests should contribute substantially to answering the technical questions posed by the *Notice*.

As noted above, EIA/CEG is firmly committed to the prompt introduction of DARS. EIA/CEG, however, is equally firm in its belief that DARS technology should be brought "on line" in an orderly manner if the interests of consumers are to be served. EIA/CEG's testing and evaluation of different DARS technologies should help the Commission achieve these goals by providing it with objective technical information -- from the laboratory and field -- that can be used to develop the appropriate regulatory regime for DARS.

VI. CONCLUSION

For the reasons set forth above, EIA/CEG urges the Commission: to move with all deliberate speed to establish a DARS regulatory regime so that consumers can enjoy the benefits of digital radio at an early date; to promote a single transmission standard for satellite- and terrestrial-based DARS so as to maximize compatibility and consumer choice; to resolve the international frequency coordination issues confronting the United States so that DARS may be

promptly implemented once now-open technical questions are resolved; and to take advantage of the testing and evaluation now being conducted by EIA/CEG in developing the appropriate regulatory structure for DARS.

Respectfully submitted,

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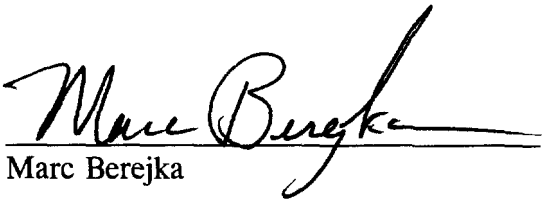
September 15, 1995

CERTIFICATE OF SERVICE

I, Marc Berejka, do hereby certify that on this 15th day of September, 1995, I have caused a copy of the foregoing to be served via first class United States Mail, postage pre-paid, upon the persons listed on this attached service list.



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